

What is claimed is:

1. A rotary dial device having a click stop mechanism, comprising:

a stationary member;

5 a rotary dial supported by said stationary member to be freely rotatable;

a ball guide groove formed on said stationary member to extend in a radial direction of said rotary dial;

a ball positioned in said ball guide groove;

10 at least one protrusion and at least one depression which are formed on said rotary dial along one of two imaginary cylindrical surfaces with axes thereof on an axis of said rotary dial, said two imaginary cylindrical surfaces being positioned radially outside and inside
15 said ball guide groove in said radial direction of said rotary dial, respectively; and

a cylindrical resilient member positioned along the other of said two imaginary cylindrical surfaces to bring said ball into pressing contact with any one of the
20 protrusion and the depression by resiliency of said cylindrical resilient member.

2. The rotary dial device according to claim 1, wherein said cylindrical resilient member comprises a coil spring.

25 3. The rotary dial device according to claim 2,

wherein said coil spring includes two engaging ends which extend in substantially opposite radial directions of said coil spring, and

wherein said stationary member includes two engaging protrusions which are engaged with said two engaging ends, respectively.

4. The rotary dial device according to claim 1, wherein said protrusion and said depression are formed on an inner periphery of a circumferential wall of said rotary dial.

5. The rotary dial device according to claim 1, wherein said protrusion and said depression are formed on an outer peripheral surface of an internal cylindrical portion of said rotary dial.

6. A rotary dial device having a click stop mechanism, comprising:

a stationary member;

a rotary dial supported by said stationary member to be freely rotatable;

at least one protrusion and at least one depression which are formed on an inner periphery of said rotary dial;

a ball guide groove formed on said stationary member to extend in a radial direction of said rotary dial and to be positioned radially inside said inner periphery of

said rotary dial in said radial direction thereof;

a ball positioned in said ball guide groove; and

a cylindrical resilient member which brings said ball into pressing contact with said inner periphery of said rotary dial, on which said protrusion and said depression are formed, wherein said cylindrical resilient member is positioned radially inside said ball guide groove in said radial direction thereof, and is substantially concentric with said rotary dial.

7. The rotary dial device according to claim 6, wherein said cylindrical resilient member includes a torsion coil spring which has two engaging ends extending in substantially opposite radial directions of said coil spring, and

wherein said stationary member includes two engaging protrusions which are engaged with said two engaging ends, respectively.

8. A rotary dial device having a click stop mechanism, comprising:

a stationary member;

a rotary dial supported by said stationary member to be freely rotatable on an axis;

at least one protrusion and at least one depression which are formed on an outer peripheral surface of an internal cylindrical portion of said stationary member;

a ball guide groove formed on said stationary member to extend in a radial direction of said rotary dial and to be positioned radially outside said outer peripheral surface of said internal cylindrical portion in said radial direction of said rotary dial;

a ball positioned in said ball guide groove; and
a cylindrical resilient member which brings said ball into pressing contact with said outer peripheral surface of said internal cylindrical portion, on which said protrusion and said depression are formed, wherein said cylindrical resilient member is positioned radially outside said ball guide groove in said radial direction thereof, and is concentric with said rotary dial.

9. The rotary dial device according to claim 8, wherein said cylindrical resilient member comprises a ring spring.

10. A rotary dial device having a click stop mechanism, comprising:

a stationary member;
a rotary dial supported on said stationary member to be freely rotatable about an axis;

a ball guide groove formed on said stationary member to extend in a radial direction of said rotary dial;

a ball positioned in said ball guide groove;
an undulated surface on which protrusions and

depressions are alternately arranged and which is formed on said stationary member to be positioned about said axis; and

a cylindrical resilient member positioned about said axis to bring said ball into pressing contact with said undulated surface by resiliency of said cylindrical resilient member,

wherein said ball guide groove is positioned between said undulated surface and said cylindrical resilient member in said radial direction of said rotary dial.

11. A rotary dial device having a click stop mechanism, comprising:

a stationary member having an axial shaft;

a rotary dial having a cylindrical portion which is fitted on said axial shaft to be freely rotatable on said axial shaft;

a ball guide groove formed on said stationary member to extend in a radial direction of said rotary dial;

a ball positioned in said ball guide groove;

an undulated surface on which protrusions and depressions are alternately arranged and which is formed on an outer peripheral surface of said cylindrical portion; and

a cylindrical resilient member positioned around said cylindrical portion to bring said ball into pressing

contact with said undulated surface by resiliency of said cylindrical resilient member,

wherein said ball guide groove is positioned between said undulated surface and said cylindrical resilient
5 member in said radial direction of said rotary dial.